

Johne's Disease

Johne's disease is a chronic infection caused by *Mycobacterium avium* subsp. *Paratuberculosis*. It is a wasting disease, where cattle show good appetite but long lasting diarrhoea and weight loss, which results in eventual death. The infectious agent is shed in faeces, but can also be passed on in colostrum. Young calves are most susceptible to infection; however the clinical signs only become apparent as the animal matures, normally after 3-6 years of age. Over time the disease can become increasingly established in a herd or breed.

Farm to farm spread of Johne's disease: The disease can be introduced into a herd by purchasing an infected animal, using manure from an infected herd (as the pathogen can be viable for up to 12 months in faeces), allowing cattle to drink from contaminated water courses and from wildlife.

Within herd spread of Johne's disease: Once the disease is present in the herd, it can be spread easily from animal to animal. Food and water sources contaminated with faecal material, dirty udders and teats, and calves consuming milk/colostrum from an infected cow will be the main sources of infection.

Control of Johne's disease

1. Testing through a Cattle Health Scheme and culling infected cattle:

This involves an annual blood test of all cattle two years old and over, culling the reactors and their offspring and testing and isolating any incoming stock unless from an accredited herd. The approximate cost for testing is £7 per cow per year. Because of the long incubation period there is a delayed immune response which can prevent early detection of infected cattle. Fluctuations in readings of the test can also cause problems, so all the reactors are not necessarily detected in the first or even second years of testing and therefore control can take several years. Johne's has an iceberg distribution – for every clinical case seen there are likely to be several animals in the herd incubating the disease and as yet undetected. For herds that test clear from the disease, testing establishes and then maintains freedom from the disease and increases the sale value of the breeding stock. For herds that are found to be infected with the disease, testing and culling can reduce losses due to the disease, improve cull cow value and productivity, and eventually lead to a disease-free status and accreditation. Due to the long incubation period of the disease, the longer a herd has tested Johne's free the smaller the risk that animals in the herd are sub-clinical carriers of the disease – so when buying cattle from accredited herds, always ask how long they have been disease-free.

2. Improve herd hygiene:

Ensure that you provide clean feed, water and calving environment. For example, look at the route the feed comes into the shed – are the loading buckets on machinery cleaned after mucking out? Will the tyres of machinery be travelling through dirty areas, and then into clean feeding areas? For cattle calving indoors, ensure that udders are clean before calves suckle by having clean bedding and washing udders if possible. Water troughs in housing should be cleaned out regularly, and placed outside of the pen, to reduce the chance of being contaminated with faecal matter.

3. Management changes:

Calving – Ideally, you should calve outdoors in the spring and wean in the autumn before housing. If calving indoors, keep cows in small groups, with clean straw, ideally with a creep area for the calves to lie away from the cows. Separate drinking bowls for calves are also advisable.

Replacements – Closed herds or replacements with disease-free status are best. Length of accreditation should be taken into consideration when buying in animals. Heifer calves that were born outdoors in the spring will present the smallest risk for keeping as replacement breeding heifers; don't keep calves from infected dams as replacements.

Water courses – Access to ponds, rivers, streams etc should be restricted by fencing so that contaminated water cannot be consumed.

Farm waste – All fields that have surface applications of slurry or FYM should not be grazed for at least four weeks ideally. FYM should be composted for at least 12 months before spreading, as the Johne's pathogen is viable in the environment for this time period. Slurry application is best carried out by shallow injection.

Health planning – The best way to avoid problems is to identify them early, record data, take on board expert and veterinary advice, create a plan of attack, implement it, and evaluate the results regularly.

4. Take biosecurity precautions:

Monitor risk with replacement animals, maintaining closed herds if possible, and buying in replacements and bulls from accredited herds. If any stock are purchased from non-accredited herds they should be blood and faeces tested and quarantined until the results are obtained. Disinfection facilities for incoming personnel are important, make sure vets, sales reps etc disinfect when coming onto your farm, and making contact with your animals. Also more general biosecurity precautions which are more relevant for diseases like BVD should be observed - any stock that you do buy in, isolate and quarantine for a minimum of 21 days, and avoid contact with neighbouring stock by double fencing, remembering gateways. Keep separate protective clothing (boots, waterproofs etc) for markets/sales.

Conclusions

- Johne's control is about risk identification and management.
- Positive management and effective health planning will aid in the control and prevention of the disease.
- Organic regulations should pose no barrier to infectious disease control – check with your certification body if you are unsure.